Date: April 11, 2016

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Subject: Former George AFB - Spring 2016 Basewide Groundwater Sampling Event

The spring 2016 groundwater monitoring event is scheduled to begin April 19, and will include gauging the depth-to-water for all groundwater monitoring and extraction wells and analyzing groundwater samples from selected wells for volatile organic compounds (VOCs), general chemistry, and total dissolved solids (TDS). The methods and analytical suites for groundwater sampling are provided in the Draft UFP QAPP (Shaw, 2012a). The list of monitoring wells to be sampled is provided as Table 1. Note that a summary of this Tech Memo was presented at the March 29 and 30, 2016 Master Well List Presentation.

The overall objectives of this groundwater monitoring event are to:

- Verify compliance with the ROD (OU1)
- Verify plume stability and product distribution in support of the PSCAP (SS030 and ST067b)
- Verify compliance with the LTMP (OT069)
- Monitor seasonal variation in groundwater elevation and flow patterns, and
- Monitor concentrations and areal extent of contaminants of concern (COCs).

There are ten sites associated with this Spring 2016 basewide groundwater monitoring event: OT069, SS030, SS084, ST067b, OT071, ZZ051, LF012, LF014, LF044 and CG070. Per the BCT workshop in August 2014, AMR sampling was to be divided into two separate events: OU1 sampling (Fall) and non-OU1 sampling (Spring); except where specified within RODs/LTMPs. The list was finalized at the Master Well List Presentation (March 29th and 30th, 2016). Table 1 includes the well identification, aquifer, screen depth, previous depth to water, proposed pump placement, associated site(s), analysis to be performed and rationale for sampling in Spring 2016. Note that some of the wells are used to monitor multiple plumes and the data collected will be used for reporting on more than one site. As such, the summation of the well totals listed in the site sections below will not equal the cumulative basewide total listed in the final section (Conclusion) of this Tech Memo. A detailed well breakdown, including associated sites, can be found in Table 1.

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OT069. Site OT069 is a chlorinated VOC groundwater plume present in the Upper Aquifer beneath the flight line area that is part of OU3. The LTMP for Site OT069 entails annual sampling to monitor the chlorinated solvent plume. As outlined in Table 1, a total of twenty-two (22) wells are proposed for sampling at OT069, during the Spring 2016 event. However, a portion of these wells are also used to monitor sites SS030, SS084, and ST067b (see Table 1 for detailed site breakdown and list of analyses).

SS030. Site SS030 is a non-CERCLA site that contains a freeproduct and a dissolved-phase petroleum hydrocarbon plume present in the Upper Aquifer beneath the flightline area. Monitoring wells associated with the SS030 site will not be sampled for dissolved constituents if free product is observed while gauging the depth-to-water. As outlined in Table 1, there are a total of forty (40) wells proposed for sampling at SS030, during the upcoming Spring 2016 event. Note that a portion of these wells are also used to monitor sites OT069 and SS084 (see Table 1 for detailed site breakdown and list of analyses).

SS084. Groundwater monitoring beneath non-CERCLA Site SS084 is intended to monitor the effectiveness of vadose zone remediation at reducing benzene and MTBE concentrations reaching groundwater. Due to the nature of the site, groundwater monitoring is addressed under SS030. As outlined in Table 1, there are a total of three (3) wells proposed for sampling at SS0840, during the upcoming Spring 2016 event. Note that all three wells are also used to monitor sites SS030 and OT069 (see Table 1 for detailed site breakdown and list of analyses).

ST067b. Site ST067b is a non-CERCLA site that contains a free product and a dissolved-phase JP-4 plume present in the Upper Aquifer and is located in the southwestern portion of the Base. Monitoring wells associated with the ST067b site will not be sampled for dissolved constituents if free product is observed while gauging the depth-to-water. As outlined in Table 1, a total of thirty-eight (38) wells are proposed for sampling at ST067b, during the Spring 2016 event. Note that a portion of these wells are also shared with sites OT069 and OT071 (see Table 1 for detailed site breakdown and list of analyses).

OT071. Site OT071 is a dieldrin groundwater plume in both the Upper and Lower Aquifers and is located in the southeast portion of the Base. As outlined in Table 1, a total of twenty (20) wells are proposed for sampling at OT071, during the Spring 2016 event. Note that a portion of these wells are also used to monitor ST067b (see Table 1 for detailed site breakdown and list of analyses).

ZZ051. Site ZZ051 contains petroleum COCs in groundwater and is located in the Upper Aquifer along the western portion of the Base (part of OU3). As outlined in Table 1, a total of four (4) wells are proposed for sampling at ZZ051, during the upcoming Spring 2016 event.

LF012. Site LF012 is an abandoned landfill covering approximately 12 acres on the eastern side of the Base and is part of OU3. Groundwater associated with LF012 is currently sampled annually and analyzed for VOCs, chloride, nitrate, sulfate, and total dissolved solids. Due to variability in the

analytical results of indicator parameters, the Draft OU3 Landfills LTMMP Amendment #3 recommended two rounds of groundwater sampling for additional geochemical parameters including calcium, magnesium, sodium, potassium, and alkalinity in order to assess major ion equilibrium and enable completion of a geochemical evaluation. Based on the geochemical evaluation, a fifth round of groundwater sampling for calcium, magnesium, sodium, potassium, alkalinity, sulfide, and ferrous iron is recommended to provide additional support for the geochemical evaluation. As outlined in Table 1, a total of four (4) wells are proposed for sampling at LF012, during the upcoming Spring 2016 event.

LF014. Site LF014 is a landfill covering approximately 50 acres in the northeastern portion of the Base and is part of OU3. Groundwater associated with LF014 is currently sampled annually. As outlined in Table 1, a total of four (4) wells are proposed for sampling at LF014, during the Spring 2016 event. Note that a portion of these wells are also used to monitor CG070 (see Table 1 for detailed site breakdown and list of analyses).

LF044. Site LF044 is an abandoned landfill covering approximately 0.5 acres in the northeastern portion of the Base and is part of OU3. Groundwater associated with LF044 is currently sampled annually. As outlined in Table 1, a total of three (3) wells are proposed for sampling at LF044, during the Spring 2016 event. Note that all three wells are also used to monitor CG070 (see Table 1 for detailed site breakdown and list of analyses).

CG070. Site CG070 consists of a TCE groundwater plume present in the Upper and Lower Aquifers in the northeastern portion of the former George AFB and is part of OU1. As outlined in Table 1, a total of five (5) wells are proposed for sampling at CG070, during the Spring 2016 event. Note that all five wells are also used to monitor LF014 and LF044 (see Table 1 for detailed site breakdown and list of analyses).

Spring 2015 Variations. Basewide locations that were sampled in Spring 2015, but will not be sampled in Spring 2016, are listed below:

- MW-49 (OT069): 5-year review well, sampled in 2015
- MW-51 (OT069): 5-year review well, sampled in 2015
- MW-148 (OT071): temporarily suspended from annual-spring sampling by BCT agreement at Master Well List Presentation in March 2016. To be reassessed in Spring 2017 for viable replacement well.
- MW-149 (OT071): temporarily suspended from annual-spring sampling by BCT agreement at Master Well List Presentation in March 2016. Potential replacement well to be installed in 2016. To be reassessed in Spring 2017
- NZ-72 (CG070): to be sampled in Fall 2016

Conclusion. In summary, a total of 113 wells (as shown in Table 1) will be sampled during the upcoming Spring 2016 basewide groundwater monitoring event. Groundwater sample analysis will include 98 VOC samples (EPA Method 8260B), 43 cation samples, 50 TDS samples, 50 chloride samples, 50 nitrate samples, 50 sulfate samples, 43 alkalinity samples, 42 field test samples, four (4) CO_2 samples, 27 dieldrin samples (OT071, ST067b, LF012), and corresponding QA samples (Table 1 - All of the wells will be gauged for depth-to-water or depth-to-product. Gauging and groundwater monitoring will be performed in accordance with the Draft UFP-QAPP (Shaw, 2012a). Sampling results from the Spring 2016 groundwater monitoring event will be reported in the 2016 Basewide Annual Monitoring and Operations Report for CERCLA and Non-CERCLA Sites.

Tables

Table 1 – Monitoring Well Summary, Spring 2016 Basewide Groundwater Monitoring Event

Figures

Figure 1 – Upper Aquifer Wells to be Sampled, Spring 2016

Figure 2 – Lower Aquifer Wells to be Sampled, Spring 2016

References

MWH, 2011, ***Final 2010 Basewide Annual Monitoring and Operations Report for CERCLA and Non-CERCLA Sites, George Air Force Base, California,*** August.

MWH, 2012, ***Final 2011 Basewide Annual Monitoring and Operations Report for CERCLA and Non-CERCLA Sites, George Air Force Base, California,*** August.

Shaw, 2013, ***Final 2012 Basewide Annual Monitoring and Operations Report for CERCLA and Non-CERCLA Sites, George Air Force Base, California,*** May.

Shaw, 2012a, ***Draft Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Quality Program Plan – Volume 1, Former George Air Force Base, Victorville, California,*** August.

Table 1

Monitoring Well Summary
Spring 2016 Basewide Groundwater Monitoring Event
Former George Air Force Base, California

Monitoring Well	Aquifer	Screen (ft bgs)	Oct 2015 DTW (ft btoc)	Screen Submerged	Proposed Pump Placement	Associated Site	Historical Product	8260B	Cations	TDS	Chloride	Nitrate	Sulfate	Alkalinity	Field Test	CO_2	Organo Chloride	Rationale
Retained from Last Spring Event (2015)																		
MW-1-OU3	U	113-143	103.43	•	128 ft btoc	ZZ051		•										Monitor benzene concentrations near ZZ051
MW-02	U	119-149	128.40		middle of wetted screen	SS030		•										Monitor upgradient edge of SS030 plume
MW-04	U	119-149	127.43		middle of wetted screen	SS030	•	•										Monitor within SS030 benzene plume
MW-13	U	120-160	128.26		middle of wetted screen	SS030		•										Non OU-1 well; all non OU-1 wells moved from Fall to Spring sampling schedule per BCT Workshop in August 2014; SS030 PSCAP compliance well
MW-16	U	120-160	126.31		middle of wetted screen	OT069, SS030		•										Monitor upgradient edge of SS030 plume; OT069 LTMP well, 5-year review sampling
MW-21	U	120-160	123.73		middle of wetted screen	SS030		•										SS030 PSCAP compliance well
MW-23	U	120-160	127.06		middle of wetted screen	SS030		•										Monitor area between ST054 and ST057; downgradient of LNAPL at MW-10; SS030 PSCAP compliance well
MW-26	U	120-160	122.02		middle of wetted screen	SS030		•										SS030 PSCAP compliance well
MW-28	U	120-160	121.51		middle of wetted screen	OT069, SS030		•										OT069 LTMP well, 5-year review sampling; SS030 PSCAP compliance well
MW-29	U	120-160	124.98		middle of wetted screen	SS030, OT069		•										Monitor east of ST054 and north of LNAPL at MW-103-OU2; SS030 PSCAP compliance well
MW-30	U	120-160	127.91		middle of wetted screen	OT069		•										Non OU-1 well; all non OU-1 wells moved from Fall to Spring sampling schedule per BCT Workshop in August 2014; OT069 LTMP well, annual sampling
MW-31	U	120-160	123.21		middle of wetted screen	OT069		•										Non OU-1 well moved from Fall to Spring sampling schedule per BCT Workshop in August 2014; OT069 LTMP well, annual sampling; SS030 PSCAP compliance well
MW-33	U	120-160	120.85		middle of wetted screen	SS030		•										SS030 PSCAP compliance well
MW-34	U	120-160	126.21		middle of wetted screen	OT069, SS030		•										Non OU-1 well; all non-OU1 wells moved from Fall to Spring sampling schedule per BCT Workshop in August 2014; SS030 PSCAP compliance well; OT069 LTMP well
MW-35	U	115-155	120.34		middle of wetted screen	OT069, SS030		•										OT069 LTMP well, 5-year review sampling, sampled in 2015; trigger well
MW-36	U	120-160	124.81		middle of wetted screen	OT069, SS030		•										Clean well downgradient of SS030 and OT069 plumes; OT069 LTMP well, 5-year review sampling; SS030 PSCAP compliance well
MW-38	U	119.76-159.65	128.49		middle of wetted screen	SS030		•										SS030 PSCAP compliance well
MW-39	U	119-159	123.63		middle of wetted screen	SS030, OT069		•										Clean well upgradient of SS030 and OT069 plumes: SS030 PSCAP compliance well
MW-40	U	118.67-159	120.65		middle of wetted screen	SS030		•										SS030 PSCAP compliance well
MW-42	U	120-160	130.18		middle of wetted screen	SS030, OT069		•										Non OU-1 well; all non OU-1 wells moved from Fall to Spring sampling schedule per BCT Workshop in August 2014; SS030 PSCAP compliance well
MW-43	U	118-158	131.38		middle of wetted screen	OT069, SS030		•										Non OU-1 well moved from Fall to Spring sampling schedule per BCT Workshop in August 2014; SS030 PSCAP compliance well; OT069 LTMP well
MW-44	U	120-160	134.01		middle of wetted screen	OT069		•										OT069 LTMP well, 5-year review sampling, sampled in 2015; trigger well
MW-45	U	120-160	121.53		middle of wetted screen	OT069, SS030		•										Monitor within SS030 benzene plume, also OT069 LTMP well; SS030 PSCAP compliance well
MW-46	U	115-155	118.93		middle of wetted screen	SS030		•										SS030 PSCAP compliance well
MW-47	U	115-155	120.57		middle of wetted screen	OT069, SS030		•										Non OU-1 well; all non OU-1 wells moved from Fall to Spring sampling schedule per BCT Workshop in August 2014; OT069 LTMP well, 5-year review sampling; SS030 PSCAP compliance well
MW-48	U	120-160	135.25		middle of wetted screen	OT069		•										Non OU-1 well; all non OU-1 wells moved from Fall to Spring sampling schedule per BCT Workshop in August 2014; OT069 LTMP well, annual sampling
MW-55	U	165-175	121.71	•	170 ft btoc	SS030		•										Monitor deep portion of the eastern perimeter of SS030 benzene plume; SS030 PSCAP compliance well
MW-57	U	120-160	130.19		middle of wetted screen	OT069, SS030		•										SS030 PSCAP compliance well
MW-58	U	120-160	128.81		middle of wetted screen	OT069, SS030		•										Monitor eastern perimeter of SS030 benzene plume; OT069 LTMP well, annual sampling; SS030 PSCAP compliance well
MW-61	U	120-160	137.91		middle of wetted screen	OT069, ST067b		•	•	•	•	•	•	•	•			Monitor upgradient of ST067b plume; OT069 LTMP well, 5-year review sampling
MW-69	U	120-140	125.94		middle of wetted screen	SS030, SS084		•										Monitor within SS084 MTBE plume
MW-70B	U	122-142	123.92		middle of wetted screen	SS030, SS084		•										Monitor northeast of SS084 MTBE and SS030 benzene plumes; SS030 PSCAP compliance well
MW-71	U	121-141	124.94		middle of wetted screen	OT069, SS030, SS084		•										Monitor northeast of SS084 MTBE and SS030 benzene plumes; OT069 LTMP well, annual sampling; SS030 PSCAP compliance well
MW-74	U	153.4-158.4	131.81	•	156 ft btoc	OT069, SS030		•										Non OU-1 well; all non OU-1 wells moved from Fall to Spring sampling schedule per BCT Workshop in August 2014; OT069 LTMP well, annual sampling
MW-75	U	121-161	135.21		middle of wetted screen	OT069		•										Non OU-1 well; all non OU-1 wells moved from Fall to Spring sampling schedule per BCT Workshop in August 2014; OT069 LTMP well, annual sampling
MW-86	U	160 -190	124.22		175 ft btoc	SS030		•										Indirect assessment of potential VOC impacts to Lower Aquifer
MW-88	U	118-183	121.27		middle of wetted screen	OT069, SS030		•										Non OU-1 well; all non OU-1 wells moved from Fall to Spring sampling schedule per BCT Workshop in August 2014; OT069 LTMP well, 5-year review sampling
MW-91	U	117-132	128.02		middle of wetted screen	OT069		•										Non OU-1 well; all non OU-1 wells moved from Fall to Spring sampling schedule per BCT Workshop in August 2014; OT069 LTMP well, annual sampling
MW-99	U	119-134	122.20		middle of wetted screen	SS030		•										Non OU-1 well; all non OU-1 wells moved from Fall to Spring sampling schedule per BCT Workshop in August 2014; SS030 PSCAP compliance well
MW-109	U	109-135	118.08		middle of wetted screen	SS030		•										Monitor northwestern perimeter of SS030 benzene plume; SS030 PSCAP compliance well
MW-110	U	110-135	119.85		middle of wetted screen	SS030		•										Monitor eastern perimeter of SS030 benzene plume
MW-111	U	107-127	119.22		middle of wetted screen	SS030		•										Non OU-1 well; all non OU-1 wells moved from Fall to Spring sampling schedule per BCT Workshop in August 2014; SS030 PSCAP compliance well
MW-112	U	115-140	122.00		middle of wetted screen	SS030		•										Monitor western perimeter of SS030 benzene plume; SS030 PSCAP compliance well
MW-113	U	109-134	124.65		middle of wetted screen	SS030		•										Monitor northwestern perimeter of SS030 benzene plume; SS030 PSCAP compliance well
MW-114	U	115-140	124.73		middle of wetted screen	SS030		•										Monitor area between ST054 and ST057; SS030 PSCAP compliance well
MW-115	U	110-140	128.32		middle of wetted screen	SS030		•										Non OU-1 well; all non OU-1 wells moved from Fall to Spring sampling schedule per BCT Workshop in August 2014; SS030 PSCAP compliance well
MW-116B	U	140-160	144.79		middle of wetted screen	ST067b	•	•	•	•	•	•	•	•	•			ST067b PSCAP compliance well
MW-117	U	140-160	143.30		middle of wetted screen	ST067b		•	•	•	•	•	•	•	•			Monitor benzene concentrations with ST067b plume; ST067b PSCAP compliance well
MW-118	U	140-160	143.11		middle of wetted screen	ST067b	•	•	•	•	•	•	•	•	•			ST067b PSCAP compliance well
MW-119	U	140-160	147.67		middle of wetted screen	ST067b	•	•	•	•	•	•	•	•	•			ST067b PSCAP compliance well
MW-120	U	145-165	NA		dedicated pump	ST067b	•	•	•	•	•	•	•	•	•			ST067b PSCAP compliance well
MW-121	U	132-152	140.25		middle of wetted screen	ST067b		•	•	•	•	•	•	•	•			Monitor upgradient of the ST067b benzene plume; ST067b PSCAP compliance well
MW-123	U	146-161	153.58		middle of wetted screen	ST067b		•	•	•	•	•	•	•	•		•	Monitor downgradient of ST067b benzene plume; ST067b PSCAP compliance well
MW-124	U	135-155	143.91		middle of wetted screen	ST067b		•	•	•	•	•	•	•	•			Monitor downgradient of ST067b benzene plume; ST067b PSCAP compliance well
MW-125	U	143.5-163.5	156.91		middle of wetted screen	ST067b		•	•	•	•	•	•	•	•			Non OU-1 well; all non OU-1 wells moved from Fall to Spring sampling schedule per BCT Workshop in August 2014; ST067b PSCAP compliance well
MW-126	U	142-162	145.70		middle of wetted screen	ST067b	•	•	•	•	•	•	•	•	•			ST067b PSCAP compliance well
MW-127	U	140.5-165.6	148.82		middle of wetted screen	ST067b	•	•	•	•	•	•	•	•	•			ST067b PSCAP compliance well
MW-128	U	145-165	156.42		middle of wetted screen	ST067b	•	•	•	•	•	•	•	•	•			ST067b PSCAP compliance well
MW-129	U	142-157	142.74		middle of wetted screen	ST067b		•	•	•	•	•	•	•	•			Non OU-1 well; all non OU-1 wells moved from Fall to Spring sampling schedule per BCT Workshop in August 2014; ST067b PSCAP compliance well
MW-130	U	146-161	153.03		middle of wetted screen	ST067b		•	•	•	•	•	•	•	•			Non OU-1 well; all non OU-1 wells moved from Fall to Spring sampling schedule per BCT Workshop in August 2014; ST067b PSCAP compliance well
MW-131	U	157-172	162.91		middle of wetted screen	ST067b		•	•	•	•	•	•	•	•			Monitor southeastern extent of ST067b benzene plume; ST067b PSCAP compliance well
MW-132	U	157-172	159.86		middle of wetted screen	ST067b		•	•	•	•	•	•	•	•			Monitor benzene concentrations with ST067b plume; ST067b PSCAP compliance well
MW-133	U	140-155	140.21		middle of wetted screen	OT069, ST067b		•	•	•	•	•	•	•	•			Monitor downgradient of ST067b plume; ST067b PSCAP compliance well; OT069 LTMP well
MW-134	U	145-160	144.16	•	152 ft btoc	ST067b		•	•	•	•	•	•	•	•			Monitor southwestern extent of ST067b benzene plume; ST067b PSCAP compliance well
MW-136	U	155-170	156.21		middle of wetted screen	ST067b, OT071		•	•	•	•	•	•	•	•		•	Monitor downgradient edge of Upper Aquifer dieldrin plume; ST067b PSCAP compliance well
MW-137	U	160-185	168.01		middle of wetted screen	ST067b		•	•	•	•	•	•	•	•		•	Non OU-1 well; all non OU-1 wells moved from Fall to Spring sampling schedule per BCT Workshop in August 2014; ST067b PSCAP compliance well
MW-138	U	137-152	142..27		middle of wetted screen	ST067b		•	•	•	•	•	•	•	•			Non OU-1 well; all non OU-1 wells moved from Fall to Spring sampling schedule per BCT Workshop in August 2014; ST067b PSCAP compliance well
MW-139	U	148-161	150.11		middle of wetted screen	ST067b	•	•	•	•	•	•	•	•	•			ST067b PSCAP compliance well
MW-140	U	148-168	153.90		middle of wetted screen	ST067b	•	•	•	•	•	•	•	•	•			ST067b PSCAP compliance well
MW-141	U	115-135	125.71		middle of wetted screen	OT069, SS030		•										OT069 LTMP well, annual sampling; ST067b PSCAP compliance well
MW-142	L	310-340	305.04	•	325 ft btoc	ST067b		•	•	•	•	•	•	•	•			Non OU-1 well; all non OU-1 wells moved from Fall to Spring sampling schedule per BCT Workshop in August 2014; ST067b PSCAP compliance well
MW-143	L	280-310	304.59		middle of wetted screen	ST067b, OT071		•	•	•	•	•	•	•	•		•	Monitor vertical migration of ST067b benzene plume; Monitor dieldrin concentrations within Lower Aquifer OT071 plume; ST067b PSCAP compliance well
MW-144	U	143-163	148.63		middle of wetted screen	ST067b, OT071		•	•	•	•	•	•	•	•		•	Clean well between ST067b and OT071 plumes; ST067b PSCAP compliance well
MW-145	L	270-300	280.04		middle of wetted screen	ST067b, OT071		•	•	•	•	•	•	•	•		•	ST067b PSCAP compliance well
MW-146	U	136-156	140.91		middle of wetted screen	ST067b, OT071		•	•	•	•	•	•	•	•		•	ST067b PSCAP compliance well
MW-147	L	310-340	288.77	•	325 ft btoc	ST067b, OT071		•	•	•	•	•	•	•	•		•	ST067b PSCAP compliance well

Table 1

Monitoring Well Summary
Spring 2016 Basewide Groundwater Monitoring Event
Former George Air Force Base, California

Monitoring Well	Aquifer	Screen (ft bgs)	Oct 2015 DTW (ft btoc)	Screen Submerged	Proposed Pump Placement	Associated Site	Historical Product	8260B	Cations	TDS	Chloride	Nitrate	Sulfate	Alkalinity	Field Test	CO_2	Organo Chloride	Rationale
MW-150	U	155-175	161.17		middle of wetted screen	ST067b		•	•	•	•	•	•	•	•			Increasing benzene concentrations
MW-151	L	275-305	297.70		middle of wetted screen	ST067b, OT071		•	•	•	•	•	•	•			•	ST067b PSCAP compliance well; downgradient edge well in lower aquifer of OT071
MW-152	L	270-300	182.90	•	285 ft btoc	OT071											•	Monitor southeastern side (upgradient) of plume
MW-153	U	152-173	162.58		middle of wetted screen	ST067b		•	•	•	•	•	•	•	•			New well; Non OU-1 well; all non OU-1 wells moved from Fall to Spring sampling schedule per BCT Workshop in August 2014; ST067b PSCAP compliance well
MW-154	U	156-176	178.60		middle of wetted screen	ST067b		•	•	•	•	•	•	•	•			New well; Non OU-1 well; all non OU-1 wells moved from Fall to Spring sampling schedule per BCT Workshop in August 2014; ST067b PSCAP compliance well
MW-155	U	157.5-187.5	185.00		middle of wetted screen	ST067b		•	•	•	•	•	•	•	•		•	New well; Non OU-1 well; all non OU-1 wells moved from Fall to Spring sampling schedule per BCT Workshop in August 2014; ST067b PSCAP compliance well
MW-157	U	179-189	188.11		middle of wetted screen	ST067b		•	•	•	•	•	•	•	•			New well; Non OU-1 well; all non OU-1 wells moved from Fall to Spring sampling schedule per BCT Workshop in August 2014; ST067b PSCAP compliance well
MW-158	U	160-180	171.99		middle of wetted screen	ST067b		•	•	•	•	•	•	•	•		•	New well; Non OU-1 well; all non OU-1 wells moved from Fall to Spring sampling schedule per BCT Workshop in August 2014; ST067b PSCAP compliance well
NZ-03	L	130-150	128.19	•	140 ft btoc	CG070, LF014		•		•	•	•	•					LTMP monitoring
NZ-13	L	155-185	148.30	•	170 ft btoc	LF014		•		•	•	•	•					LTMP annual monitoring
NZ-15	U	152-182	130.79	•	167 ft btoc	SS030		•										Monitor deep portion of Upper Aquifer immediately downgradient of LNAPL plume at ST054
NZ-58	L	142-163	139.78	•	152 ft btoc	LF014		•		•	•	•	•					LTMP annual monitoring
NZ-60	L	275-295	258.48	•	285 ft btoc	LF012		•	•	•	•	•	•	•	•	•		LTMP annual monitoring
NZ-61	L	265-285	258.48	•	275 ft btoc	LF012		•	•	•	•	•	•	•	•	•		LTMP annual monitoring
NZ-62	L	274-294	264.10	•	284 ft btoc	LF012		•	•	•	•	•	•	•	•	•		LTMP annual monitoring
NZ-63	U	131-151	147.70		middle of wetted screen	OT071											•	Monitors the northern side of the plume.
NZ-64	L	277-297	275.43	•	287 ft btoc	OT071											•	Downgradient ND well north of plume
NZ-65	L	268-288	264.78	•	278 ft btoc	OT071											•	Downgradient ND well northwest of plume
NZ-66	U	65-85	46.02	•	75 ft btoc	OT071											•	Internal to Dieldrin plume. Monitors plume stability
NZ-80	L	258-278	245.45	•	268 ft btoc	CG070, LF044		•		•	•	•	•					LTMP monitoring for the landfill, to be sampled in Fall too.
NZ-89	U	117-137	122.17	•	middle of wetted screen	OT071											•	Internal to Dieldrin plume. Monitors plume stability
NZ-91	U	55-70	61.34		middle of wetted screen	OT071											•	Internal to Dieldrin plume. Monitors plume stability
NZ-107	L	260-280	251.41	•	270 ft btoc	CG070, LF014		•		•	•	•	•					LTMP monitoring for the landfill, to be sampled in Fall too.
NZ-108	L	258-278	258.28		middle of wetted screen	LF012		•	•	•	•	•	•	•	•	•	•	LTMP annual monitoring
NZ-112	L	180-200	173.61	•	190 ft btoc	CG070, LF044		•		•	•	•	•					LTMP monitoring for the landfill, to be sampled in Fall too.
NZ-113	L	133-153	127.30	•	143 ft btoc	CG070, LF044		•		•	•	•	•					LTMP monitoring for the landfill, to be sampled in Fall too.
NZ-119	U	148-168	166.81		middle of wetted screen	ST067b		•	•	•	•	•	•	•	•		•	ST067b PSCAP compliance well
NZ-120	U	98-118	109.32		middle of wetted screen	OT071											•	Center of groundwater mount. Monitors upgradient (infiltration from surface)
NZ-121	U	14-29	27.08		middle of wetted screen	OT071											•	Downgradient ND well east of groundwater mound
NZ-122	U	55-75	59.88		middle of wetted screen	OT071											•	Internal to Dieldrin plume monitoring plume stability east of groundwater mound.
NZ-123	U	33-48	47.53		middle of wetted screen	OT071											•	Downgradient ND well west of groundwater mound
NZ-124	U	140-156	140.98		middle of wetted screen	OT071											•	Internal to Dieldrin plume monitoring plume stability south of groundwater mound.
NZ-125	U	140-160	149.47		middle of wetted screen	OT071		•	•	•	•	•	•	•	•		•	ST067b PSCAP compliance well. Internal to Dieldrin plume monitoring plume stability south of groundwater mound.
WZ-04	U	115-135	106.42	•	125 ft btoc	ZZ051		•										Monitor effectiveness of vadose zone treatment
WZ-05	U	115-135	102.27	•	125 ft btoc	ZZ051		•										Monitor effectiveness of vadose zone treatment
WZ-06	U	113-133	102.38	•	123 ft btoc	ZZ051		•										Monitor effectiveness of vadose zone treatment
ADELANTO-4					NA												•	City supply well upgradient of the plume
Spring 2016 Totals																		
Total Spring 2016 Well Count			**113**			**Analysis Totals**		**100**	**43**	**50**	**50**	**50**	**50**	**43**	**42**	**4**	**27**	
Wells Removed/Moved from Spring 2015 Sampling Event																		
MW-49	U	120-160				OT069												OT069 LTMP well, 5-year review sampling, sampled in 2015
MW-51	U	110-140				OT069												OT069 LTMP well, 5-year review sampling, sampled in 2015
MW-148	L	230-250				OT071												Monitor northeastern side (sidegradient) of plume: temporarily remove from Spring 16 and reassess in Spring 17; screened too deep - data gap? replacement
MW-149	L	210-240				OT071												Monitor southeastern side (upgradient) of plume. Due west of City Supply well ADELANTO 4; temporarily remove from Spring 16 and reassess in Spring 17; screened too deep - data gap? Replacement to be installed
NZ-72	L	201-221				CG070												To be sampled in October 2016

Notes:
btoc - below top of casing
CO2 - field measurement
Spring 2016 Sampling Event includes 113 wells and consists of 98 VOC samples, 43 cations, 50 TDS, 50 chloride, 50 nitrate, 50 sulfate, 43 alkalinity, 42 field tests, 4 CO2 field tests, and 27 dieldrin samples.
Field Test - field measurements of alkalinity, sulfide, and ferrous iron
FP - Flood Plain Aquifer
L - Lower Aquifer
TCE - Trichloroethene.
U - Upper Aquifer
VOCs - Volatile organic compounds.

Wells to be Sampled

MW-01-OU3	MW-70B	MW-133
MW-02	MW-71	MW-134
MW-04	MW-74	MW-136
MW-13	MW-75	MW-137
MW-16	MW-86	MW-138
MW-21	MW-88	MW-139
MW-23	MW-91	MW-140
MW-26	MW-99	MW-141
MW-28	MW-109	MW-144
MW-29	MW-110	MW-146
MW-30	MW-111	MW-150
MW-31	MW-112	MW-153
MW-33	MW-113	MW-154
MW-34	MW-114	MW-155
MW-35	MW-115	MW-157
MW-36	MW-116	MW-158
MW-38	MW-117	NZ-15
MW-39	MW-118	NZ-63
MW-40	MW-119	NZ-66
MW-42	MW-120	NZ-89
MW-43	MW-121	NZ-91
MW-44	MW-123	NZ-119
MW-45	MW-124	NZ-120
MW-46	MW-125	NZ-121
MW-47	MW-126	NZ-122
MW-48	MW-127	NZ-123
MW-55	MW-128	NZ-124
MW-57	MW-129	NZ-125
MW-58	MW-130	WZ-04
MW-61	MW-131	WZ-05
MW-69	MW-132	WZ-06

LEGEND

- Free Product Extraction Well
- Vapor Monitoring Point
- Groundwater Monitoring Well
- Vapor Extraction Well
- Vapor Monitoring Well
- Water Supply Well
- Inactive Supply Well
- Well to be Sampled April 2016
- Topogaphic Contour (ft msl)
- Former George Air Force Base Boundary

0 900 1,800 3,600

Feet

1 inch = 1,800 feet

N

CB&I Federal Services LLC
2410 Cherahala Blvd
Knoxville, TN 37932

FORMER GEORGE AIR FORCE BASE
VICTORVILLE, CALIFORNIA

FIGURE 1

WELLS TO BE SAMPLED
SPRING 2016
UPPER AQUIFER

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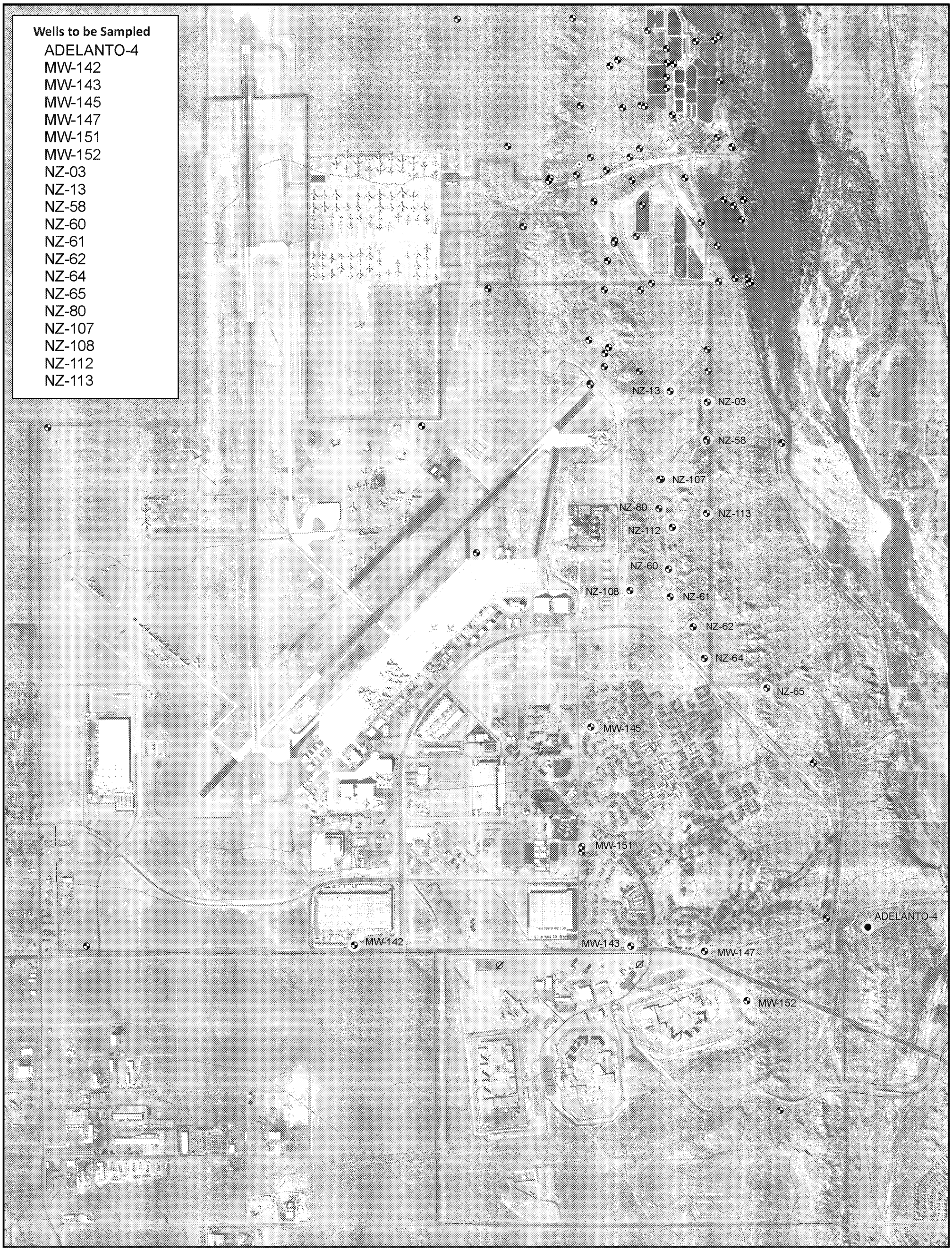
Wells to be Sampled

ADELANTO-4
MW-142
MW-143
MW-145
MW-147
MW-151
MW-152
NZ-03
NZ-13
NZ-58
NZ-60
NZ-61
NZ-62
NZ-64
NZ-65
NZ-80
NZ-107
NZ-108
NZ-112
NZ-113



LEGEND

- Free Product Extraction Well
- Groundwater Monitoring Well
- Water Supply Well
- Inactive Supply Well
- Well to be Sampled April 2016
- Topogaphic Contour (ft msl)
- Former George Air Force Base Boundary

0 900 1,800 3,600
Feet
1 inch = 1,800 feet

N

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FORMER GEORGE AIR FORCE BASE
VICTORVILLE, CALIFORNIA

FIGURE 2

WELLS TO BE SAMPLED
SPRING 2016
LOWER AQUIFER

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